DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Objections

2. Claim 19 objected to because of the following informalities: claim 19 reads "…giving each message a sequence number; and **19.3** discarding duplicate messages…". The "19.3" was not removed from the claim when amending it to conform to US practices, and it should be removed. Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 17 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 17, a limitation reads "…wherein the node manager of each node of said plurality of nodes executes a single OSPF, wherein the OSPF in each node of said plurality of nodes communicates with the node manager of the adjacent nodes of said plurality of nodes so that the OSPF converges on the topology of the network." OSPF is a protocol and the phrase "executes a single OSPF" does not make sense, because it is unclear whether a single message is sent under OSPF protocol or whether OSPF is the single protocol associated with the nodes. To further prosecution, the examiner interprets this claim to read "…wherein the node manager of each node of said plurality of nodes operates according to a single protocol, OSPF, wherein the OSPF protocol in each node of said plurality of nodes communicates with the node manager of the adjacent nodes of said plurality of nodes so that the OSPF protocol converges on the topology of the network".

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1-5, 11, 12, 14, 15, 18, 21, 22, 27 and 30 are rejected under 35 U.S.C. 102(e) as being anticipated by Guo Wang et al. (US Patent No. 7,190,896), referred herein as Wang.

Regarding claim 1, Wang teaches an optical network element for use in a node of an optical network that includes a plurality of nodes that are interconnected so as to be capable of carrying traffic between selected nodes (column 3, lines 45-55 teach an optical network with a plurality of interconnected nodes), the network elements comprising a local network management system having means for building up a supervisory connection between the optical network element of a first node of said plurality of nodes and at least a network element of a second node of said plurality of nodes of the optical network (figure 2 teaches the interconnected nodes including a first and second node and column 1, lines 38-42 teach the supervisory channel in the network of nodes), wherein the local network management system supports an arbitrary network topology and builds up the supervisory connection to at least one predetermined other node of the plurality of nodes of the network so that the network element can be integrated in an optical network with arbitrary topology (column 5, lines 8-13 and 37-41 teach adjusting the control channels to the topology), wherein the supervisory connection is a redundant connection through two or more paths and wherein the local network management system monitors the status of all paths of the redundant supervisory connection and establishes an alternative route for a specific supervisory connection in the event of an impairment of the specific supervisory connection (column 2, lines 62-67 and column 3, lines 1-5 teach monitoring the

performance of the paths and an alternate path for the supervisory connection, which gives it redundancy). For claim 1, 35 U.S.C. 112 6th paragraph was invoked for the "means for building up a supervisory connection" limitation since it meets the three-pronged analysis.

Regarding claim 2, Wang teaches the limitations of claim 1. Wang further teaches the local network management system providing self-healing of the supervisory connection for an impairment of the supervisory connection (column 2, lines 62-67 and column 3, lines 1-5 teach an alternate path for the supervisory connection so that it may work again in case of failure or impairment).

Regarding claim 3, Wang teaches the limitations of claim 1. Wang further teaches an optical network element comprising a software module associated with the network management system that acts as a node manager and includes a software agent and a status, fault and events monitor (column 2, lines 1-11 teach monitoring the network's status and detecting faults or events, where it is inherent that software is needed to run this monitoring and the corrections taught in column 2, lines 51-61).

Regarding claim 4, Wang teaches the limitations of claim 1. Wang further teaches the optical network management system configured by standard software protocols (column 5, lines 14-23 teach using the wavelength routing protocol).

Regarding claim 5, Wang teaches the limitations of claim 1. Wang further teaches the optical network element wherein the local network management system automatically discovers network elements of adjacent nodes of said plurality of nodes and exchanges Link State Advertisements with the adjacent network elements of the

adjacent network nodes of said plurality of nodes (column 5, lines 30-43 teach link state advertisements distributed to the optical network where the messages, such as 'Hello' messages, are send to adjacent nodes).

Regarding claim 11, Wang teaches the limitations of claim 1. Wang further teaches an optical network including a plurality of nodes that are interconnected so as to be capable of carrying traffic between selected nodes (figure 2 teaches the interconnected nodes), comprising a plurality of network elements as taught from claim 1, a network management system carried out by at least one of the local network management systems of the network elements (column 3, lines 56-63 teach a controlling unit for managing the network elements' operation), and supervisory connections between predetermined network elements (column 1, lines 28-37 teach supervisory functions when transmitting between two given end-to-end nodes).

Regarding claim 12, Wang teaches the limitations of claim 11. Wang further teaches the network management system providing establishment of a direct logical supervisory connection between any desired pair of nodes of said plurality of nodes interconnected by the supervisory connection (column 3, lines 34-44 teach a connection between any given nodes where data and a supervisory signal are transmitted).

Regarding claim 14, Wang teaches the limitations of claim 11. Wang further teaches the network management system providing auto-recovery of the supervisory connections (column 2, lines 62-67 and column 3, lines 1-5 teach an alternate path for the supervisory connection so that it may recover in case of failure or impairment).

Regarding claim 15, Wang teaches a method of providing a supervisory network in an optical network having an arbitrary network topology that includes a plurality of nodes that are interconnected so as to be capable of carrying traffic between selected nodes (figure 2 teaches the interconnected nodes), the method comprising automatically discovering the network topology (column 5, lines 8-13 and 37-41 teach adjusting the control channels to the topology), establishing redundant supervisory connections between predetermined nodes of said plurality of nodes of the network (column 2, lines 62-67 and column 3, lines 1-5 teach monitoring the performance of the paths and an alternate path for the supervisory connection, which gives it redundancy), monitoring the status of all paths on the redundant supervisory connection (column 2, lines 62-67 and column 3, lines 1-5 teach performance monitoring for all control, or supervisory, signals), and establishing an alternative route for a specific supervisory connection in the event of an impairment of the specific supervisory connection (column 2, lines 62-67 and column 3, lines 1-5 teach an alternate path or route in the event of a failure or malfunction of the connection).

Regarding claim 18, Wang teaches the limitations of claim 15. Wang further teaches a method comprising monitoring the status of the supervisory connections and configuring alternative routes in the event of link failure (column 2, lines 62-67 and column 3, lines 1-5 teach monitoring the performance and selecting an alternate path or route in the event of a failure or malfunction of the connection).

Regarding claim 21, Wang teaches the limitations of claim 15. Wang further teaches a method comprising carrying out a function on all supervisory connections,

wherein the function is hardware fault detection (column 5, lines 44-50 teach restoration and protection for hardware failure such as node failures and it is inherent that the failures would have to have been detected before restoration could take place).

Regarding claim 22, Wang teaches the limitations of claim 15. Wang further teaches a method comprising carrying out a function on all supervisory connections, wherein the function is selected from the group consisting of auto-recovery (column 5, lines 44-50 teach automatic restoration in case of failure).

Regarding claim 27, Wang teaches the limitations of claim 4. Wang further teaches the standard software protocol of OSPF (column 5, lines 18-19 teach OSPF).

Regarding claim 30, Wang teaches the limitations of claim 18. Wang further teaches a method wherein monitoring the status of the supervisory connections is accomplished by OSPF (column 5, lines 14-19 teach using the OSPF protocol to carry out the routing and signaling, and inherently the monitoring thereof).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claim 6-8 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang in view of Mark Stratton et al. (US Patent No. 5,970,193), referred herein as Stratton.

Regarding claim 6, Wang teaches the limitations of claim 1. Wang also teaches a supervisory card (column 6, lines 17-24, teach a card of the supervisory control plane). However, Wang does not teach at least one back-plane including a plurality of electrical transmission lines running across the back-plane and a plurality of electrical terminals connected to the plurality of electrical transmission lines; a plurality of line-card slices having line-card slice electrical terminals, wherein each line-card slice is attached to the back-plane, so that the line-card slice electrical terminals are electrically connected to the electrical terminals of the plurality of electrical terminals of the back-plane; at least one optical receiver associated with at least one of the plurality of line-card slices for receiving optical signals from the network; at least one opto-electrical converter integrated in or optically connected to the optical receiver with electrical terminals of the at least one opto-electrical converter and; at least one optical transmitter associated with at least one of the plurality of line-card slices for transmitting optical signals to the network; at least one electro-optical converter integrated in or optically connected to the optical transmitter with electrical terminals of the at least one opto-electrical converter; and at least one supervisory card plugged to the back-plane capable of functions selected from the group consisting of transmitting supervisory signals, processing supervisory signals, and a combination thereof, wherein at least one of the electrical terminals of said plurality of electrical terminals are switch terminals that

provide selected and reconfigurable electrical interconnections among components of at the least one line-card slice selected from the group consisting of the receiver, the transmitter, the converter, and any combination thereof, wherein the interconnections are accomplished by devices selected from the group consisting of an electrical switches and at least one electrical cross-connect, and wherein the supervisory card is electrically connected via the electrical transmission lines of the back-plane to a one of said plurality of line-card slices by a connection selected from the group consisting of direct connection and a cross-connect. **Stratton** teaches a network element comprising at least one back-plane including a plurality of electrical transmission lines running across the back-plane and a plurality of electrical terminals connected to the plurality of electrical transmission lines (column 3, lines 49-67 and column 4, lines 1-3 teach an interconnection module which function as a back plane for multiple cards and column 1, lines 40-51 teach electrical conductors and electrical terminals on the module), a plurality of line-card slices, each line-card slice attached to the backplane so that the line-card slice electrical terminals are electrically connected to the electric terminals of the plurality of electrical terminals of the back-plane (column 3, lines 14-48 teach a card attached to the interconnect, or modified back plane, where the electrical terminals of the card are electrically connected with the back plane), at least one optical receiver associated with at least one of the plurality of line slices (column 3, lines 22-25 teach a laser receiver for receiving optical signals) at least one opto-electrical converter integrated in or optically connected to the optical receiver with electrical terminals of the at least one opto-electrical converter (column 3, lines 44-47 teach converting optical

signals into electrical signals), at least one optical transmitter associated with at least one of the plurality of line-card slices for transmitting optical signals to the network (column 3, lines 22-23 teach laser transmitters for transmitting signals), at least one electro-optical converter integrated or optically connected to the optical transmitter with electrical terminals of the at least one opto-electrical converter (column 3, lines 44-48 teach converting electrical signals to optical signals wherein the electrical signals are connected to the opto-electrical converter through conductors), and at least one card plugged to the back-plane capable of the function of transmitting supervisory signals (column 3, lines 22-23 teach laser transmitters for transmitting signals), where at least one of the electrical terminals of said plurality of electrical terminals are switch terminals that provide selected and reconfigurable electrical interconnections among components of at the least one receiver or transmitter line-card slice (column 3, lines 49-52 teach a switch means on one of the electrical terminals of the modified back-plane), wherein the interconnections are accomplished by devices of the electrical switch group (column 3, lines 49-52 teach a switch means on one of the electrical terminals of the modified back-plane) and wherein the cards are electrically connected via the electrical transmission lines of the back-plane to one of said plurality of line-card slices by a direct connection (column 1, lines 52-55 teach interconnections amongst the cards with modified back-planes). Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to combine the supervisory card of Wang with the teaching of Stratton for providing data communication structures

which minimize the limits in signal speed of the connections of back-planes and their cards (column 1, lines 24-39 teach this advantage).

Regarding claim 7, Wang and Stratton teach the limitations of claim 6. Wang further teaches a supervisory card (column 6, lines 17-24, teach a card of the supervisory control plane). However, Wang does not teach a node PC as being plugged to a back plane that provides and/or receives an electrical supervisory signal that is transmitted to or from a supervisory card (column 1, lines 52-55 teach interconnections amongst the cards with modified back-planes). Stratton also teaches a node PC plugged into the back plane that provides and receives an electrical signal sent from a card. Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to further combine Wang's supervisory card and signal with the teaching of Stratton for providing data communication structures which minimize the limits in signal speed of the connections of back-planes and their cards (column 1, lines 24-39 teach this advantage).

Regarding claim 8, Wang and Stratton teach the limitations of claim 7. Stratton further teaches a node PC acting as a stand-alone computer sub-system (column 3, lines 14-48 teach a card managing the optical data transfers on its own, rather than in connection to another card). Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to further include the teaching of Stratton with the teaching of Wang for minimizing the connections required for the control network.

Regarding claim 28, Wang and Stratton teach the limitations of claim 6. Stratton further teaches the line-card slices as connected to the back-plane by a direct attachment (column 1, lines 52-55 teach interconnections amongst the cards with modified back-planes). Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to further combine the teaching of Wang with the teaching of Stratton for the transmission of data signals of a shelf configuration (column 1, line 25 teaches this advantage).

9. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wang in view of Satoru Okamoto (US Patent No. 6,094,442), referred herein as Okamoto.

Regarding claim 9, Wang teaches the limitations of claim 1. However, Wang does not teach the supervisory connection providing at least part of an in-band supervisory data by using electrical multiplexing and demultiplexing of the supervisory data with the client's data, carried by the optical network. Okamoto teaches the supervisory connection providing at least a part of an in-band supervisory data by using electrical multiplexing and demultiplexing of the supervisory data with the client's data, carried by the optical network (column 3, lines 60-67 and column 4, lines 1-11 teach the electrical multiplexing and demultiplexing of a supervisory signal that is in-band with the data, or VCs). Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to combine the teaching of Wang with the teaching of Okamoto for providing a termination equipment capable of inserting an

optical path supervisory signal without increasing signal length (column 3, lines 38-42 teach this advantage).

10. Claims 10, 16, 17, 20 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang.

Regarding claim 10, Wang teaches the limitations of claim 1. Wang further teaches a system wherein the supervisory connection provides at least a part of an out-of-band supervisory data multiplexed onto or demultiplexed from one or more optical fiber links of the optical network by a WDM coupler (column 4, lines 25-30 teach the supervisory signals of the control plane as being transmitted via dense wavelength division multiplexing, DWDM). However, Wang does not teach the transmission as being standard WDM. The examiner takes Official Notice that it would have been obvious to one of ordinary skill in the art at the time the invention was made to use wavelength division multiplexing (WDM) instead of dense wavelength division multiplexing (DWDM) since WDM is easier to implement and is functionally equivalent if the number of channels is not too large.

Regarding claim 16, Wang teaches the limitations of claim 15. Wang further teaches an embodiment wherein each node of the plurality of nodes of the system includes a local network management system (column 3, lines 56-63 teach a controlling unit for each node of the network that manages it), wherein the local network management system of each of the plurality of nodes communicates with the local network management system of adjacent nodes of said plurality of nodes and

exchanges Link State Advertisements (column 5, lines 30-43 teach the network sending Link State Advertisements, and it is inherent that the nodes would communicate with each other to do this), so that each node of said plurality of nodes discovers all the adjacent nodes of said plurality of nodes and by utilizing the exchanged Link State Advertisements, routing paths are generated that are stored in at least one of the plurality of nodes (column 5, lines 63-67 and column 6, lines 1-2 teach determining routing after receiving information about the network). However, Wang does not teach a routing table. The examiner takes Official Notice that it would have been obvious to a person having ordinary skill in the art at the time the invention was made to include a routing table since routing tables are well known in the art and Wang's mention of computing routes and paths would lead a person of ordinary skill in the art to implement a routing table.

Regarding claim 17, Wang teaches the limitations of claim 16. Wang further teaches an embodiment wherein the node manager of each node of said plurality of nodes executes a single protocol, OSPF (column 5, lines 18-22 teach the OSPF protocol as a protocol for use in the network), wherein the WRP protocol based on the OSPF protocol in each node is configured to communicate with the node manager of the adjacent nodes of said plurality of nodes so that the WRP protocol based on the OSPF protocol converges on the topology of the network (column 5, lines 14-34 teach a protocol based off the OSPF protocol as being the protocol used to keep track of the network and any topology changes of the network). The examiner takes Official Notice that it would have been obvious to a person having ordinary skill in the art at the time

the invention was made to use the OSPF protocol since the OSPF protocol is taught as being the source for the WRP protocol and a person of ordinary skill in the art would have had good reason to pursue the OSPF protocol as a known technical option within his or her grasp.

Regarding claim 20, Wang teaches the limitations of claim 16. Wang further teaches a method wherein the network management is carried out by the node manager present in the local management system in at least one node of the network (column 3, lines 56-63 teach the network management as being carried out by a control unit in each node).

Regarding claim 29, Wang teaches the limitations of claim 16. Wang further teaches an embodiment where the local network management system includes at least one node manager (column 3, lines 56-63 teach a control unit for managing a node and the network parameters).

11. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wang in view of Takayoshi Morita et al. (US Patent No. 5,706,112), referred herein as Morita.

Regarding claim 13, Wang teaches the limitations of claim 12. However, Wang does not teach carrying the supervisory signals by a technique selected from the group consisting of time division multiplexing, statistical multiplexing, and a combination thereof over a single physical supervisory connection between a pair of nodes. Morita teaches carrying the supervisory connection by time division multiplexing (column 12, lines 45-63 teach using time division multiplexing for transmitting a supervisory signal

within a network). Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to combine the teaching of Wang with the teaching of Morita for reducing the number of terminals required to connect the supervisory signal light source and the transmission means can be reduced (column 12, lines 52-56 teach this advantage).

12. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wang in view of Takashi Fukagawa et al. (US Patent No. 6,671,469), referred herein as Fukagawa.

Regarding claim 19, Wang teaches the limitations of 15. Wang also teaches sending supervisory data that is carried by the optical network for use in a supervisory management layer of the network in the form of messages through at least one available redundant connection from a sending end to a receiving end of the network (column 2, lines 51-61 teach sending messages through a control plane, or network layer, from a sending node to a receiving node). However, Wang does not teach giving each message a sequence number or discarding duplicate messages on the receiving end and passing only one of several arriving messages on to the supervisory management layer. Fukagawa teaches a method of giving messages a sequence number to a message and discarding duplicate messages on the receiving end and passing only one of several arriving messages to the supervisory management layer (column 2, lines 55-67 and column 3, lines 1-6 teach marking frames with secret numbers and discarding the excess frames). Therefore, it would have been obvious to

a person having ordinary skill in the art at the time the invention was made to combine the teaching of Wang with the teaching of Fukagawa for preventing transmission of excess frames.

13. Claims 23 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang in view of Rohit Sharma et al. (US Patent No. 5,986,783), referred herein as Sharma.

Regarding claim 23, Wang teaches the limitations of claim 15. However, Wang does not teach monitoring a status of each supervisory connection by sending keep-alive messages at predetermined intervals of time between predetermined nodes and by resending reply-messages on receiving of a keep-alive message and closing down the supervisory connection between the predetermined nodes in the event that the reply-message in response to the keep-alive message is not received within a predetermined time period. Rohit teaches monitoring a status of each supervisory connection by sending keep-alive messages at predetermined intervals of time between predetermined nodes and by resending reply-messages on receiving of a keep-alive message and closing down the supervisory connection between the predetermined nodes in the event that the reply-message in response to the keep-alive message is not received within a predetermined time period (column 15, lines 19-67 and column 16, lines 1-3 teach the nodes of an optical network sending keep alive messages to each other at regular, thus predetermined, intervals and the nodes are pre-determined to be adjacent nodes). Therefore, it would have been obvious to a person having ordinary

skill in the art at the time the invention was made to combine the teaching of Wang with the teaching of Sharma for helping to reconfigure the network accordingly if it fails (column 16, lines 1-3 teach this advantage).

Regarding claim 24, Wang and Sharma teach the limitations of claim 23. Sharma further teaches the step of automatically re-establishing a new connection between the predetermined nodes via an alternative connection path (column 15, lines 65-67 and column 16, lines 1-3 teach switching in the event of a failure). Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to further include Sharma's teaching of automatically re-establishing a new connection for helping to reconfigure the network accordingly if it fails (column 16, lines 1-3 teach this advantage).

14. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wang in view of Shoa-Kai Liu (US Patent No. 6,005,694), referred herein as Liu.

Regarding claim 25, Wang teaches the limitations of claim 15. However, Wang does not teach storing information concerning the network status in the local network management system of at least one predetermined node, wherein the information is selected from a group consisting of predetermined information, real time information, and a combination thereof. Liu teaches storing information concerning the network status in the local network management system of at least one predetermined node, wherein the information is real time information (column 5, lines 8-19 teach modules at each node for storing and processing real time information on the network status).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to combine the teaching of Wang with the teaching of Liu for improving coordination of fault detections and increasing accuracy (column 5, lines 11-13 teach this advantage).

15. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wang in view of Harvey Lehman et al. (US Patent No. 4,763,317), referred herein as Lehman.

Regarding claim 26, Wang teaches the limitations of claim 3. However, Wang does not teach a user interface selected from the group consisting of GUI, console, and TL1. Lehman teaches a user interface in the form of a console (column 16, lines 36-53 teach a console as an interface in a network with supervisory channels). Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to combine the teaching of Wang with the teaching of Lehman for providing centralized control for user functions of subscriber communication equipment (column 16, lines 43-45 teach this advantage).

Conclusion

16. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Toshibumi Kawano (US Patent No. 5,436,750), John Fee et al. (US Patent No. 5,914,794), Hisashi Taketomi (US Patent No. 7,039,314), Ross Saunders et al. (US Patent No 7,257,120) and Stephen Alexander et al. (US Patent No.

5,798,855). These patents relate to supervisory channels in an optical network and are worth noting for the record.

17. Any response to this Office Action should be faxed to (571) 273-8300 or mailed to:

Commissioner for Patents,
P.O. Box 1450
Alexandria, VA 22313-1450

Hand-delivered responses should be brought to
Customer Service Window
Randolph Building
401 Dulany Street
Alexandria, VA 22314

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to CODY W. LAMB whose telephone number is (571)270-1797. The examiner can normally be reached on Monday - Friday 8 a.m. - 5 p.m. EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Benny Tieu can be reached on 571-272-7490. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Cody W. Lamb
Examiner, Art Unit 4177
3 December 2007

/Benny Q Tieu/
Supervisory Patent Examiner, Art Unit 4177